

Implementation and evaluation of a novel orientation manual for the emergency medicine clerkship and elective rotation

Mise en œuvre et évaluation d'un nouveau manuel d'orientation pour l'externat et les stages à option d'urgence

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Implication Statement

The Kelowna General Hospital (KGH) Emergency Medicine (EM) Orientation Manual (OM) is a 28-page, mobile-friendly resource designed for medical students to use on- and off-shift. It contains all the academic, clinical, and logistical information needed for the KGH EM rotation, minimizing extrinsic cognitive load while equipping junior learners with tools to enhance learning and performance. The OM is adaptable by modifying the site-specific information while preserving the EM educational content. Future directions include further evaluation of the manual and replication at other University of British Columbia medical school sites, as the curriculum is the same across the province.

Énoncé des implications de la recherche

Le manuel d'orientation en médecine d'urgence du Kelowna General Hospital (KGH) est une ressource de 28 pages, adaptée aux téléphones portables, conçue pour que les étudiants en médecine puissent l'utiliser pendant et en dehors de leur quart de travail. Il contient tous les renseignements académiques, cliniques et logistiques nécessaires pour les stages à option en médecine d'urgence au KGH, minimisant la charge cognitive extrinsèque tout en équipant les jeunes apprenants d'outils pour améliorer l'apprentissage et la performance. Le manuel est adaptable en modifiant les informations propres au site tout en préservant le contenu éducatif de la médecine d'urgence. Les orientations futures comprennent une évaluation plus poussée du manuel et sa reproduction ailleurs dans la faculté de médecine de l'Université de la Colombie-Britannique, étant donné que le curriculum est le même dans toute la province.

Introduction

Emergency medicine (EM) is a challenging rotation for junior learners as it requires integration and application of broad, complex clinical knowledge in a chaotic environment.¹ Logistical challenges associated with a new rotation and scattered orientation materials often impair clinical learning.² The Ottawa Handbook of EM is an approach-based resource for clerkship students with robust uptake;³ however, it lacks rotation logistics. Given its success, we developed a comprehensive orientation manual (OM) for the Kelowna General Hospital (KGH) EM rotation for medical students at the University of British Columbia (UBC), including relevant logistical information and clinical resources to aid learning.

Description of innovation

The OM is a 28-page, mobile-friendly document for medical students to use on- and off-shift. It is a "one-stop-shop" for the KGH EM rotation, including departmental and rotation logistics, clinical education resources, quick reference pages, and tips for success. A senior medical student (ST), an EM resident (DFK), and the undergraduate EM education lead (GM) designed the OM. A Qualtrics survey-based needs assessment of the previous year's clerkship students and synthesis of all prior orientation material informed the content. Two medical students, two program administrators, and the EM residency program director provided peer review. The OM entered distribution in August 2023. To our knowledge, no other EM site in Canada

has such a manual. An overview of the project is summarized in Figure 1. As our goals were quality assurance and program evaluation with no research intent, this project was exempt from formal review by the UBC Undergraduate Medical Education Learners Access Advisory Council and Research Ethics Board.

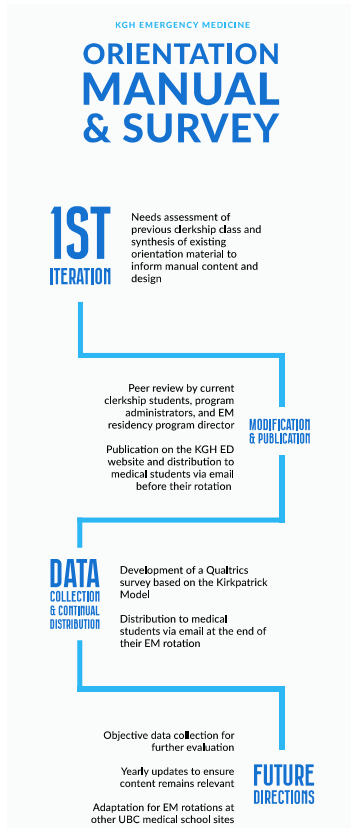


Figure 1. Development of the Kelowna General Hospital Emergency Medicine Orientation Manual
 KGH, Kelowna General Hospital; EM, emergency medicine; ED, emergency department; UBC, University of British Columbia

Outcomes

For evaluation, we conducted a Qualtrics survey comprising 11 five-point Likert scale questions and one open-ended question. Our sample was the 2023/24 academic year clerkship and elective students who received the manual. We structured the survey according to the Kirkpatrick Model, an evidence-based framework for evaluating the effectiveness of educational programs, including assessing reaction, learning, behaviour, and results.⁴ Other outcomes included use and students' preparation time. The survey was peer-reviewed by an EM physician experienced in assessment. The survey was distributed to students via email at the end of their EM rotation. The response rate was 38% (18/48). Appendix A. includes the survey questions will full responses.

While we have no baseline data, our survey suggests that this OM generally aids learning and subjectively benefits performance, preparedness, and enjoyment of the rotation and is user-friendly. Students report the manual does not make preparing for the EM rotation more demanding, when compared to other rotations. The OM has the secondary benefit of replacing a two-hour discussion of rotation logistics with EM-specific teaching, including supervised practice with the ultrasound machine and slit lamp and a discussion of clinical decision-making before the start of the rotation.

Suggestions for next steps

Students responded positively to having a single, comprehensive document for their EM rotation. Our educational innovation is limited by self-reported results, a small sample size with low response rate, and no pre-intervention data to draw clear conclusions regarding effects of the manual. More robust assessment is warranted. Next steps include collecting objective data for further evaluation, performing yearly updates to ensure the content remains relevant, and adapting the OM to other sites within UBC medical school, as the curriculum is consistent across the province.

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Appendix A.

Kelowna General Hospital Emergency Medicine Orientation Manual survey results from clerkship and fourth-year elective students from the 2023-2024 academic year.

Response rate: 37.5% (18/48 students)					
Use Questions					
	Never	Occasionally	Sometimes	Often	Very Often
Did you refer to the orientation manual and/or resources in the orientation manual throughout your emergency medicine rotation?	3 (16.7%)	0 (0%)	5 (27.8%)	4 (22.2%)	6 (33.3%)
Did you refer to the orientation manual and/or resources contained in it while on shift?	6 (33.3%)	2 (11.1%)	3 (16.7%)	4 (22.2%)	3 (16.7%)
Preparation Time Questions					
	Significantly less time	Somewhat less time	No difference	Somewhat more time	Significantly more time
Did the orientation manual affect the time you needed to prepare for the rotation compared to other rotations?	0 (0%)	11 (61.1%)	5 (27.8%)	1 (5.6%)	1 (5.6%)
Kirkpatrick Model Questions					
Reaction					
	Not at all	Slightly	Somewhat	Mostly	Very
Was the orientation manual engaging?	0 (0%)	1 (5.6%)	2 (11.1%)	9 (50.0%)	6 (33.3%)
Learning					
	Not at all	Slightly	Somewhat	Mostly	Completely
Did the orientation manual help you learn the logistical and clinical information you needed for your rotation?	0 (0%)	0 (0%)	1 (5.6%)	15 (83.3%)	2 (11.1%)
Behaviour					
	Not at all	Rarely	Sometimes	Often	Very often
Did you apply knowledge acquired from the orientation manual, or the resources in the manual during the emergency medicine rotation?	0 (0%)	0 (0%)	7 (38.9%)	6 (33.3%)	5 (27.8%)
Results					
	Negatively affected all these outcomes	Negatively affected some of these outcomes	No effect on these outcomes	Positively affected some of these outcomes	Positively affected all these outcomes
Did the orientation manual affect your preparedness for the rotation, performance on the rotation, and/or enjoyment of the rotation?	0 (0%)	0 (0%)	0 (0%)	11 (61.1%)	7 (38.9%)
In relation to the question above, if the manual only affected some of the outcomes (preparedness, performance, enjoyment) please indicate which one(s).	<p>“Preparedness – great primer on common presentations, [differential diagnoses], common meds. Loved it.”</p> <p>“Mostly preparedness, provided insight into what to anticipate and how shifts work. Very helpful overall.”</p> <p>“Preparedness primarily, enjoyment somewhat, and performance only to some degree.”</p> <p>“Providing insight into common presentations in each region of the ED allowed me to focus my preparation. Also having recommended resources made studying rotation specific. The information regarding shifts and expectations also took a lot of the guess work out of the rotation. The additional information allowed for better preparation for the rotation and less time worrying about what needs to be done or further expectations, thus improving enjoyment.”</p> <p>“We are provided with so many resources for all of our rotations it is hard to know which ones are the highest yield. I definitely used this manual when preparing for the rotation and thought it was well laid out and a great reference for how to succeed on our rotation. When it came time to accessing resources on shift and when reading around patients I found myself leaning more on the core content manual and the many online resources that are available and apps (most of which were referenced in the manual).”</p>				

Preparedness					
	Not at all	Slightly	Somewhat	Mostly	Fully
Did the orientation manual prepare you for the emergency medicine rotation?	0 (0%)	0 (0%)	2 (11.1%)	13 (55.6%)	3 (33.3%)
Performance					
	Significantly decreased performance	Somewhat decreased performance	No effect	Somewhat benefited performance	Significantly benefited performance
Did the orientation manual affect your performance on the emergency medicine rotation?	0 (0%)	0 (0%)	3 (16.7%)	8 (44.4%)	7 (38.9%)
Enjoyment					
	Significantly decreased enjoyment	Somewhat decreased enjoyment	No effect	Somewhat benefited enjoyment	Significantly benefited enjoyment
Did the orientation manual affect your enjoyment of the rotation?	0	0	6 (33.3%)	7 (38.9%)	5 (27.8%)
In relation to the question above, if the orientation manual affected your enjoyment of the rotation please indicate how.	<p>"Felt more confident after reviewing the common presentation/common medication pages."</p> <p>"I felt like it gave me a comprehensive understanding of the flow of the rotation which was nice. I think it reduced the learning of a new hospital so I could begin my learning immediately."</p> <p>"Great resource, screenshotted it and carried on my phone every day."</p> <p>"Made me feel more prepared and confident on my first days."</p> <p>"It relieved quite a bit of stress associated with starting an elective in a new city and new department."</p> <p>"Good resource and easy to find information to refer back to."</p> <p>"New rotations are always challenging. Having an orientation gave us a bit of context and insight into the rotation so we were more prepared. This greatly helped as I didn't feel as uncomfortable or unprepared if we didn't have the orientation."</p> <p>"I think the manual helped me have a better understanding of the DOs and the expectations for the rotation overall. Very useful in regards to expectations of the nurse preceptor shift."</p> <p>"It took lots of the stress away from learning the practical administrative things and shifted focus to learning medicine."</p> <p>"Could tell the program cared about students enjoying their time and doing well on the rotation."</p> <p>"I believe that it helped me prepare better knowing a little more of what to expect from the different shifts and what resources (Apps) I could utilize, etc. So thank you."</p>				